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In the claims:

1. (Currently amended) A bioremediation method comprising the step of using microorganisms to concentrate and eliminate radionuclides in the radioactive water of spent nuclear fuel pools.
2. (Previously presented) The bioremediation method of claim 1 comprising the step of using a bioreactor containing a metallic material wound into a ball, that is non-corrosive or non-degradable when exposed to the radioactive water of nuclear pools and is capable of being colonized by the microorganisms found in said water.
3. (Previously presented) The bioremediation method according to claim 2 comprising directing the water to be treated through the bioreactor, in continuous flow, to contact the material inside it and thereby create a biofilm that retains the radionuclides.
4. (Previously presented) The bioremediation according to claim 2 comprising the step of culturing said ball in the presence of microorganisms previously isolated from the radioactive water to be treated in order to accelerate the radionuclide-concentration process.
5. (Currently amended) A method for bioremediation of water in the containment area of a nuclear power plant containing spent nuclear fuel comprising the steps of providing a bioreactor containing a metallic material capable of being colonized by viable but not culturable microorganisms found in said water and passing said water through said bioreactor to form a biofilm that retains radionuclides including 60-Co.
6. (Previously presented) A method according to claim 5 wherein said metallic material is made of a material selected from the group consisting of stainless steel and titanium.
7. (Previously presented) A method according to claim 6 wherein said metallic material is formed into balls.
8. (Previously presented) A method according to claim 5 wherein said step of providing a bioreactor comprises forming said metallic material into balls, degreasing said balls, sterilizing said balls, and placing said balls in said bioreactor.
9. (Previously presented) A method according to claim 8 wherein the cross sectional area of said bioreactor is about 280 mm^2 and said step of passing said water through said bioreactor comprises pumping through said bioreactor an average of about three cubic meters of said water per hour.

10. (Previously presented) A method according to claim 9 wherein said bioreactor is cylindrical and about 250 mm high.